

IN THE CLAIMS:

CLAIM 1(ORIGINAL). In a rotational casting apparatus for coating a body with an elastomer comprising a main frame for supporting a body to be coated with elastomer, a mixing head in which a liquid elastomer is contained, and dispensing means operatively connected with said mixing head for dispensing liquid elastomer onto a body to be coated supported by said main frame, the improvement comprising:

said dispensing means comprising nozzle means having an interior flow passageway through which the liquid elastomer from said mixing head flows;

said interior flow passageway defining a straight longitudinal axis along the length thereof, and having an inlet section in fluid cooperation with said mixing head, an intermediate section, and an outlet opening;

said intermediate section comprising a plurality of different portions, each said portion having a cross-sectional shape along said longitudinal axis different from a cross sectional shape of another of said plurality of different portions; each said cross-sectional shape being defined in a plane transverse to said longitudinal axis;

each said cross-sectional shape of each of said plurality of different portions defining a cross-sectional area substantially equal to the cross-sectional area of another said cross-sectional shape of said plurality of different cross-sectional shapes;

said outlet opening having a substantially elongated-like shape and having a cross-sectional area greater than said cross-sectional area of each said cross-sectional shape of said plurality of different cross-sectional shapes, whereby substantial laminar flow through said

intermediate section and substantial equality of dwell-time of each hypothetical section of flowing liquid elastomer in said intermediate section occurs.

CLAIM 2(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said inlet section of said interior passageway comprises laminar-flow tubular section for ensuring laminar flow therein.

CLAIM 3(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 2, wherein said laminar-flow tubular section for ensuring laminar flow comprises a venturi-flow tubular portion, said venturi-flow tubular portion having an end-cross-section having a cross-sectional area substantially equal to said cross-sectional area of each of said plurality of different cross-sectional shapes.

CLAIM 4(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said plurality of different portions comprises a first series of substantially circular cross sections and second series of substantially ellipse-like cross sections.

CLAIM 5(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 4, wherein said plurality of different portions further comprises a third series of substantially elongated slot-like cross sections.

CLAIM 6(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 5, wherein at least some of said third series of substantially elongated slot-like cross sections are an oval-of-Cassini-like shape.

CLAIM 7(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 6, wherein said outlet opening is an oval-of-Cassini-like shape.

CLAIM 8(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said outlet opening is an oval-of-Cassini-like shape.

CLAIM 9(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said outlet opening comprises a cross-sectional area at least twice as great as said cross-sectional area of each said cross-sectional shape of said plurality of different cross-sectional shapes.

CLAIM 10(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said plurality of different portions shapes comprises a first series of substantially circular cross-sectional shapes, and a second series of substantially elongated cross-sectional shapes.

CLAIM 11(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 10, wherein at least some of said second series of substantially elongated cross-sectional shapes are an oval-of-Cassini-like shape.

CLAIM 12(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 11, wherein said outlet opening is an oval-of-Cassini-like shape.

CLAIM 13(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 12, wherein said outlet opening comprises a cross-sectional area at least twice as great as said cross-sectional area of said second series of cross-sectional shapes.

CLAIM 14(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 10, wherein each said cross section of said second series of substantially elongated cross-sectional shapes comprises a horizontal x-coordinate dimension and a vertical y-coordinate direction; each said cross section of said third series of elongated cross-section shapes having a x-y product different from that of any other respective said cross section of said third series.

CLAIM 15(ORIGINAL). The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said inlet section of said interior passageway comprises a laminar-flow tubular section for ensuring laminar flow therein; said laminar-flow tubular section comprising a venturi-flow tubular portion, said venturi-flow tubular portion having a circular end-cross-section having a cross-sectional area substantially equal to said cross-sectional area of each of said plurality of different cross-sectional shapes.

Claim 16 (CANCELLED).

Claim 17 (CANCELLED).

CLAIM 18(ORIGINAL). In a rotational casting apparatus for coating a body with an elastomer comprising a main frame for supporting a body to be coated with elastomer, a mixing head in which a liquid elastomer is contained, and dispensing means operatively connected with said mixing head for dispensing liquid elastomer onto a body to be coated supported by said main frame and having an outlet for dispensing the liquid elastomer on a body to be coated, the improvement comprising:

said dispensing means comprising nozzle means having an unbranched interior flow passageway through which the liquid elastomer from said mixing head flows;

said interior flow passageway defining a straight longitudinal axis along the length thereof and having an inlet section in fluid cooperation with said mixing head and an intermediate section;

said intermediate section comprising a plurality of different cross-sectional shapes along said longitudinal axis; each said cross-sectional shape being defined in a plane transverse to said longitudinal axis;

each said cross-sectional shape defining a cross-sectional area substantially equal to the cross-sectional area of another said cross-sectional shape.

CLAIM 19(ORIGINAL). The rotational casting apparatus according to claim 18, wherein said outlet opening has a shape similar to the shape of the last cross-sectional shape of said

intermediate section adjacent thereto, whereby substantial laminar flow through said intermediate section and substantial equality of dwell-time of each hypothetical section of flowing liquid elastomer in said intermediate section occurs; said plurality of different cross sections comprising a first series of substantially circular cross-sectional shapes, a second series of substantially ellipse-like cross-sectional shapes, and a third series of substantially elongated cross-sectional shapes.

Claims 20 (CANCELLED). WITHOUT PREJUDICE.